

TO: Kristie Warr

FROM: Rick Haaker, CHP, CIH

SUBJECT: Review of Las Conchas Fire Work Order 11-07024

DATE: 7/20/2011

The data were reviewed for accuracy, completeness, and any apparent issues. During data review a qualifier "UB" was assigned if the activity result is less than five times the activity result of the method blank. A "UB" qualifier denotes that an analyte is non-detect due to lack of activity relative to a blank concentration. Unused filters from the same lot as the sample filters were used as the method blank. The analytes in Table 1 were detected in the method blank, and all samples are affected.

Table 1. Analytes detected or tentatively detected in the method blank and data qualifiers based on the blank.

Isotope	Assigned Qualifier
TOTAL SR	
U-234	
GROSS ALPHA	J
GROSS BETA	
PU-238	J

Data without a UB qualifier was further reviewed.

A "U" was assigned to the Assigned Qualifier column when result was less than 50% of the MDA. In this case the analytical result was assigned to be one-half of the MDA in the "ValidatedResult" column. The validated result should be considered an upper bound estimate in this case.

A "J" was assigned if the result was between 0.5 of the MDA and the MDA. The validated result is the reported result. The validated result represents an estimated value in this case.

A "JH" or "JL" would be based on percent recovery (the "RadioPercentRec", "GravPercentRec" and the "LCSpercentR" columns of the Eberline Services report. Recoveries below 70% would result in a JL to denote the result is estimated with a low bias. Recoveries above 130% would result in assignment of a JH to denote that the result is estimated with a high bias.

Table 2 lists samples that exhibited percent recoveries outside of the acceptance range.

Table 2. Samples with recoveries outside of the acceptance range.

Isotope	ClientID	RadioPercentRec	Assigned Qualfier
PU-239	A002-110701-1143-1-T01	43.63	U
PU-239	A002-110703-0952-1-T01	52.81	U
PU-239	A003-110701-0916-1-T01	40.14	U
PU-239	A003-110703-0907-1-T01	51.61	UB
PU-239	A004-110701-0848-1-T01	41.76	U
PU-239	A004-110703-0912-1-T01	63.97	U
U-234	A001-110703-0915-1-701	61.3	UB
U-234	A006-110701-0940-1-T01	22.6	JL
U-235	A001-110703-0915-1-701	61.3	UB
U-235	A006-110701-0940-1-T01	22.6	JL
U-238	A001-110703-0915-1-701	61.3	JL
U-238	A006-110701-0940-1-T01	22.6	JL
AM-241	A005-110703-1030-1-T01	60.05	U
PU-238	A001-110703-0915-1-701	60.56	U
PU-238	A001-110702-0947-1-701	37.43	UB
PU-238	A002-110701-1143-1-T01	43.63	U
PU-238	A002-110703-0952-1-T01	52.81	UB
PU-238	A003-110701-0916-1-T01	40.14	U
PU-238	A003-110703-0907-1-T01	51.61	U
PU-238	A004-110701-0848-1-T01	41.76	U
PU-238	A004-110703-0912-1-T01	63.97	U
PU-239	A001-110703-0915-1-701	60.56	UB
PU-239	A001-110702-0947-1-701	37.43	U

The assigned data qualifiers are found in column “AssignedQualifier”.

The effective air volume for the various analytes of the various air samples in cubic meters are provided in the column “AliquotNetEquiv”.

Note that the blank results are in pCi/m<sup>3</sup>. The volume that Eberline Services assigned to the blanks for a given analyte are the average of the effective volumes for the samples in the sample set for that analyte.

Air volumes that were collected in this sample set were in the range of 195 to 832 cubic meters.

The period of time between collection of air samples and gross alpha/beta counting was eight to nine days, so those results are unlikely to include an activity contribution due to the presence of radon daughters.

Two samples in the EDD each have two different sample dates. The sample dates for these two samples need to be corrected to 7/3/2011 before the data is loaded into SCRIBE. The affected samples are:

- A001-110703-0915-1-701, and
- A002-110703-0952-1-T01.

No discrepancies were found in the transcription of sample IDs or sample volumes from the chain of custody to the EDD.

One sample, A006-110701-0940-1-T01, requires discussion owing to the JL assignment for U-234, U-235, and U-238. This sample exhibited a low recovery of the U-232 tracer as well as exceeding the detection criteria. It was discussed with the Eberline Services laboratory manager. He reviewed the uranium alpha spectrum for this sample and had the impression that spectral degradation had occurred, perhaps due to unwanted mass being present in the prepared sample. This would have the effect of reducing the signal in the energy range of interest for the U-232 tracer (hence the low recovery) and creating noise at lower energies, which are of interest in the uranium analysis.